Ancient Olive Oil Production – The Greek World, Part III

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In the last issues of *Labyrinth* we saw how ancient farmers found the geography and soil of Greece to be well-suited for the cultivation of olive trees. From cultivation to harvest was a fairly easy step, but it was the stage of pressing and processing that took the greatest care and expertise on the part of the early farmers.

When it came to the actual extraction and processing of olive oil, little changed from Greek to Roman times, or from Greek to Roman techniques. The best descriptions for the processing of olive oil come from later Roman writers who described techniques common throughout the ancient Mediterranean world.

Extracting the oil from the harvested olives usually involved an initial milling process in which the kernels were removed from the olive berries without crushing the kernels (Pliny, *Historia Naturalis*, 18.317). Columella, in the 1st century AD, tells us that one of the best ways to do this was to use an oil-mill whose "stones can be lowered or even raised to suit the size of the berries, and so prevent crushing of the kernel, which spoils the flavour of the oil." (*De Re Rustica*, 12.52.6). Figure "d" is a possible cross-section reconstruction of such a *mola olearia*, based on early descriptions.

The next step in the processing of olive oil, according to Pliny and others, again from the 1st century AD, was to press the mash from the milling process using devices similar to ones we've seen before: the bag and lever press (figure "a"), which was also used to produce juice from wine grapes (see *Labyrinth*, January 1999).

This press came in a variety of incarnations (figures "a", "b" and "c"), and while no ancient press has yet survived in the archaeological record, we do have a number of literary references on which to draw. The 1st century BC work *De Agricultura* of Cato not only contains detailed specifications for building a lever press, but also a "how-to" manual for pressing olives (*De Agricultura*, 18). The device was not unlike that shown in figure "b", but it is Hero of Alexandria, writing in the 1st century AD, who actually describes four different kinds of presses for us in Book III of his *Mechanike*: a lever press (as in figure "a"), a lever-screw press (as in figure "c"), and two direct screw presses (similar to later bookbinding presses). Pliny also gives us a good description of a lever-screw press, as a first century BC Greek invention, in his *Historia Naturalis* (18.317). All of these presses were merely variations on a theme, meant to extract as much oil as possible from the olive pulp produced in the earlier milling process.

As for the farm on which the mills and presses were used, we have a very clear and detailed description of the equipment needed to run a 150-acre olive orchard by Cato in his *De Agricultura* (10). Here he describes the number of laborers and livestock required; the presses, mills and utensils; the wagons, ploughs and baskets; the spades, hoes and axes; the jars, vats, stools, beds, pillows and towels that go into the efficient running of an orchard of this size. It is an amazing inventory of the precise equipment needed on a 1st century BC Roman, and presumably Greek, olive farm.

So once the olive oil had been extracted, processed and stored, what was left other than to use it, tax it or trade it? The ancient Greeks used olive oil in ways we would not even imagine using it today. They cooked with it as we do, they used it in their oil lamps, as we have seen from archaeological evidence, and they offered it to their gods as we know from legends, myths and art. They also used it as a financial commodity to pay their taxes to their kings, to clean themselves instead of using soap (which they had no knowledge of yet), they used it instead of butter or lard on their bread, on their bodies as insulation from the cold, as a lubricant for their machinery, and by mixing olive oil with rose, sage and coriander they produced an excellent perfumed oil which was also a major trade commodity as well.

On the subject of trade, olive oil played a major role in the prosperity and well-being of Greece on the global-market, such as it was 2500 years ago. Somewhere around 594 BC, the Greek lawgiver Solon reformed a number of laws, not least of which included an economic policy that promoted and expanded Greek trade in olive oil. This reform was part of a law that prohibited the export of all agricultural products (except olives and olive oil) since Attica could not support her own population with grain products alone and people were going hungry throughout the land. The reform helped stimulate the production of olives and olive oil on Greek soil and lubricated the supply-and-demand trade of olive oil throughout the Greek and Mediterranean world. With Solon's encouragement of olive oil export, Greece enjoyed a prosperity that played into the hands of politicians and entrepreneurs alike. From the 4th century BC, we are told by Aristotle, for instance, that the 6th century BC philosopher Thales cornered the olive oil market in Miletus and Chios by hiring every olive-press there at a low out-of-season price, and then raising the price of using those presses when the in-season demand for them was the highest (*Politics*, 1259a9).

We will continue our look at the Greek trade in olive oil around the Mediterranean in the next issue of *Labyrinth* as we investigate the mechanisms of trade, the players in the export / import market, some of the quantities exchanged and the effects of war on the production and trade of olive oil in ancient Greece.